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ABSTRACT

To improve the reliability of selection interviews, the faculty of the University of Texas Medical Branch physician's assistant program developed a structured fourteen-category interview. The thirty-minute interview was used to select from 94 applicants; each applicant was interviewed three times and independently rated on a five-point scale of acceptability. The Hogan Empathy Scale, the Nelson-Denny Reading Test, and the Otis Mental Ability Test were also administered. Results supported the reliability of the interview. Its concurrent validity was indicated by a significant correlation with the Hogan Empathy Scale. The Hogan Empathy Scale was not considered to be a feasible selection instrument by itself; however, it was recommended as the type of personality inventory which could be used to assess the concurrent validity of selection interviews. (The fourteen interview categories are appended, and include: initial interest in career; career goals; most and least attractive aspects of the career; previous experience; interest in other programs or fields; financial plans; family support; feelings about the physicians-assistant relationship; outside interests; expectation of program; and expected salary as a physician's assistant). (Author/GDC)

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Abstract

A STRUCTURED INTERVIEW FOR THE SELECTION OF PHYSICIAN'S ASSISTANT STUDENTS

Bruce R. Niebuhr, Ph.D., Steven R. Shelton, P.A.-C., and Shirley A. Werner, P.A.-C

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Selection interviews have been criticized as lacking reliability and validity. With the purpose of improving reliability, the faculty of the Physician's Assistant program of The University of Texas Medical Branch developed a structured interview for selection of the class of 1979-81. Each applicant was interviewed three times and rated on a five-point scale of acceptability. The applicants were also administered standard aptitude tests and the Hogan Empathy Scale. Significant inter-rater reliability was revealed by a chi-square goodness-of-fit test. Concurrent validity of the interview was obtained by a significant correlation of the interview with the Hogan Empathy Scale. The predictive validity of the interview will be examined throughout the two-year curriculum. It was proposed that personality inventories be used as criteria for assessing concurrent validity of selection interviews.

KEY WORDS: Admissions, Selection Interviews, Physician's Assistants

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The use of the personal interview as a selection device by medical educational programs has been sharply criticized as lacking reliability and validity (1-4). One residency program abandoned use of the selection interview upon finding that agreement between interviewers in rating applicants was virtually nil (4). Some medical schools have also eliminated the interview (5). Nevertheless, the selection interview continues to be extensively used, in part because it serves other purposes, such as a public relations function for the educational programs (6). In any case, because of its widespread use Morse maintains that more research is needed to determine effective ways to produce reliable data from the selection interview (2). In one recent study significant inter-rater agreement was obtained from interviews of Physician's Assistant (P.A.) applicants (7).

In general, the results of published studies do not support the validity of selection interviews in medical programs (2,3,8,9). An exception is a study by Murden et al in which interview ratings, but not premedical GPA, were found to correlate with later clinical success in medical school (10).

In the Fall of 1978 the faculty of the Physician's Assistant Program of The School of Allied Health Sciences, The University of Texas Medical Branch at Galveston, began a reevaluation of the student selection process. In order to rank applicants a selection formula was developed which included as factors the selection interview, the Otis Mental Ability Test (11), the Nelson-Denny Reading Test (12), and three variants of college grade point average (GPA): overall GPA, GPA in scientific subjects, and GPA for the last 30 semester hours. Of particular concern to the faculty was the selection interview, viewed as a method to examine non-cognitive characteristics of the applicants not assessed by grade point average and standardized aptitude tests. The consensus of the faculty was to retain a selection interview and to structure it to improve its reliability. The faculty were requested to identify question categories they considered important to an interview. The categories ultimately agreed upon to form the basis of the structured interview are presented in Table 1. The categories were selected with an awareness on the faculty's part that interviewers would have differing interpretations of the applicant's responses to questions. Whether the interviewers' interpretations would be similar enough to yield reliable interview ratings is an empirical question.

The purposes of the present paper are to describe the structured interview format, to assess the reliability of interview ratings, and to make a preliminary examination of the validity of the ratings. In particular, concurrent validity was examined by comparing interview ratings with scores on the Hogan Empathy Scale (13). Empathy is one personality characteristic

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described as playing an important role in effective health care (14).

Method

A total of 94 applicants met or expected to meet the minimum application standards of 60 semester hours in specified courses with a minimum GPA of 2.0 on a 4-point scale and were invited to Galveston for testing and interviewing. Seven of these applicants had applied in previous years but had not been accepted. The demographic characteristics of the applicants presented in Table 3 are similar to those reported for other programs (15). The size of the incoming class was set at 25.

Interviews were conducted by 17 full and adjunct faculty members of the Physician's Assistant program. Of the faculty, eight were P.A.s, three were physicians, and four were Ph.D.s. Two program graduates, not employed at the University, also served as interviewers. The interviewers were provided with a guide to the interview which specified the question categories (Table 1) and provided space for applicant responses and for additional questions and responses. In addition, the interview guide included a checklist for the interviewers to assess the following behavioral characteristics of the applicants: dress, mannerisms, eye contact, speech fluency, and responsiveness to interviewer's questions. A brief summary of each applicant was attached to the guide which included GPA and colleges attended. In order to facilitate a free flow of conversation, the interviewers were not required to ask questions in any predetermined order.

Each interview was allotted one-half hour and was conducted by one interviewer. Upon completion of the interview the interviewer rated the applicant according to the 5-point scale presented in Table 2. Each applicant was interviewed three times by different interviewers. Since each interviewer rated the applicant before discussing the interview with others the interviews were performed independently. In order to minimize the effect of any tendency on the part of any group of interviewers to rate consistently high or low, assignments were made in such a manner that a group of any three interviewers would not interview more than one applicant. A mean rating of the three interviews was calculated, and included as a factor in the selection formula.

In a testing session the applicants were administered the Otis Mental Ability and Nelson-Denny Tests. In addition, they were asked to complete the 64-item Hogan Empathy questionnaire (13). The empathy questionnaire was administered as part of an ongoing research study on personality characteristics of P.A. students and was not used as a selection factor.

Because of the limited number of interviews common to any two interviewers, traditional correlation type inter-rater reliability coefficients were not utilized. Reliability was assessed utilizing a chi-square goodness-of-fit test in the following manner. For each set of three interviews the absolute number of points each rating deviated from the other two was obtained and summed. This deviation sum can take on a limited number of values: 0, 2, 4, 6, or 8. A deviation sum of 0 represents complete agreement among the three interviews. The worst-case sum of 8 can only occur if one rating is 5 and a second is 1 (the rating of the third interview will not affect the deviation sum in this case, e.g., 5, 1, 1, and 5, 1, 5 both yield deviation sums of 8). The chi-

square goodness-of-fit test was used to determine whether across all interviews the ratings tended to show greater agreement than expected by chance. A similar use of chi-square to assess inter-rater reliability is described by Pharris and Van Cleve (7).

Concurrent validity of the interview was examined by obtaining Pearson product-moment correlations of interview ratings and Hogan Empathy Scale scores. Additional inter-correlations of ratings, GPA, Otis IQ, combined Nelson-Denny vocabulary and comprehension scores, and Empathy Scale scores were obtained.

Results

Of the 94 individuals invited, 87 were interviewed and tested. The remaining 7 either withdrew their applications or failed to appear for interviewing. Completed empathy questionnaires were obtained for 82 applicants. In the case of one applicant, an interview rating of "1" by one interviewer and "5" by another was obtained. In this case a fourth interview was conducted and a mean rating based upon the four interviews determined.

The mean interview rating for the 87 applicants was 3.6 with a standard deviation of .8. The results of the chi-square goodness-of-fit test to determine inter-rater reliability are presented in Table 4. The amount of agreement is significantly greater than that expected by chance ($\chi^2 = 145$, $df = 4$, $p < .001$). The interview ratings were found to correlate significantly with the Empathy Scale ($r = .25$, $df = 80$, $p < .05$). Inter-correlations are given in Table 5.

Discussion

Results of the present study support the reliability and concurrent validity of the selection interview for the incoming Physician's Assistant class of 1979-81 at the University of Texas Medical Branch. The predictive validity of the interview will be examined throughout the two-year curriculum. Of particular interest is whether the interview will be better than GPA, Otis, or Nelson-Denny as a predictor of clinical performance. Gough & Hall found that clinical performance of medical students was not predictable from entering GPA or aptitude scores (14).

Both the interview and the Otis were found to correlate significantly with the Hogan Empathy Scale. However, the interview, unlike the Otis Test, can be structured to more expressly examine empathic capabilities of applicants. The Hogan Empathy Scale itself is not feasible as a selection instrument. Unlike a standardized aptitude test, it is available in only one form, the scoring key for which was published in the original article (13). Personality inventories such as the Hogan Empathy Scale are most valuable as criteria for assessing the concurrent validity of a selection interview.

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Table 1
Question Categories of the Selection Interview

1. How the applicant became interested in becoming a P.A.
2. How the applicant's career goals could be satisfied by being a P.A.
3. The most and least attractive features of being a P.A. as perceived by the applicant.
4. Previous experience in health care.
5. Use of P.A. education as a method to enter another field.
6. Had the applicant considered medical school.
7. Had the applicant applied to other P.A. programs.
8. Financial plans for educational costs.
9. Family support for becoming a P.A.
10. Applicant's feelings about the dependent role of the P.A. upon a physician.
11. Applicant's response to a hypothetical situation in which he or she was not given sufficient responsibility.
12. Interests outside of work and school.
13. Expected changes in lifestyle if admitted to the program.
14. Expected salary as a P.A.

Table 2

Interview Rating Scale

Rating	Description
1	Unacceptable. I do not want this student in the class.
2	Marginal. I am doubtful about this student.
3	Satisfactory. This student, while not outstanding, should be fine.
4	Very good. I am very enthused about this student.
5	Excellent. A magnificent prospect.

Table 3

Demographic Characteristics of Applicant Pool

Sex	Number	Age (in years)	
Male	48	Mean	25.0
Female	46	Standard Deviation	5.4

Previous Education	Number
Ph. D.	1
Masters	3
Baccalaureate	27
Associate	2
College Hours without Degree	60

Table 4

Chi-Square Goodness-of-Fit Test for Determining Inter-rater Reliability (Interviews of 87 Applicants)

Deviation Sum	Observed Frequency	Observed Probability	Expected Probability
0	16	.18	.04
2	49	.57	.19
4	18	.21	.29
6	3	.03	.29
8	1	.01	.19

$\chi^2 = 145.07$, df = 4, $p < .001$

Table 5

Intercorrelations (r) of Selection Formula Factors plus Empathy Scale

	Interview	Empathy Scale	GPA	Otis
Interview	---			
Empathy Scale	.25*	---		
GPA	.23*	-.04	---	
Otis	.26*	.22*	.46**	---
Nelson-Denny	.12	.04	.38**	.64**

df = 85 (df = 80 for correlations involving empathy scale)
* $p < .05$ ** $p < .001$